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*Prof. E. J. James, with the
Compliments of
Leonard Pearson*

REPORT OF THE COMMITTEE ON INTELLIGENCE AND EDUCATION

LEONARD PEARSON, CHAIRMAN; D. A. HUGHES, H. M.
REYNOLDS, GEORGE R. WHITE, ADOLPH EICHORN

REPORT BY LEONARD PEARSON,

Chairman, Philadelphia.

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For the last few years your committee on Intelligence and Education has published statistical statements and descriptions of the work of the various veterinary schools in North America. These statements have furnished information that has been drawn from the catalogues of the various institutions, from replies made by representatives of the institution in response to inquiries from your committee and reports from members of this association appointed to visit the different schools. From the information obtained through these and other channels, each member of this association, and every progressive veterinarian of the United States, must have a fair conception of the quality of work that each school is prepared to do and he must be informed, in a general way, as to the kind of work that each school is actually doing. On this account no effort has been made to obtain and to detail statistical information in regard to the schools. In fact, it is scarcely possible to obtain information of real value, in addition to that which is already contained in the records of the recent meetings of the association, without going to the expense of sending around to all of the schools an impartial visitor. This expense your committee was not authorized to incur.

It is, therefore, assumed that the present status of the schools is well known to you. This assumption will obviate the painful necessity of considering each of the schools separately, with the view of pointing out its excellencies and its defects. Such a duty would, indeed, be a painful one, because the defects so enormously outweigh the excellencies. Without entering, in this report, upon a criticism of individual schools, it is proposed to outline briefly the organization, equipment and budget of what might be termed *an adequate* veterinary school; that is to say, a school organized and equipped to conduct its work in a way that would adequately comply with the proper demands upon such an institution and thus to furnish a standard for measuring each school.

The outline that follows is not utopian, nor is it even ideal, but it is intended to be of such a plain business-like statement as might be prepared in response to a request to furnish a sketch of what is needed in order that the veterinary sciences may be taught in an adequate manner and in a way that is proportionate to the needs of the country and in harmony with the development of modern technical and professional schools. With such an outline, each member of the profession can measure the efficiency of a given school, and the relative merits of different schools can be compared.

A veterinary teaching institution may naturally be divided into three parts:

I. THE TEACHING BODY; II. THE MATERIAL EQUIPMENT;
III. THE STUDENT BODY.

I. The Teaching Body.—The faculty and the subordinate teaching staff may be divided into natural groups according to the subjects taught. The following is suggested as an appropriate classification of the subjects of instruction and, hence, of the work of the teaching body:

ANATOMY	MEDICINE
PHYSIOLOGY	HYGIENE
PATHOLOGY	SURGERY
ANIMAL ENGINEERING.	

It is proposed that all of the various branches of instruction shall be grouped under the above general headings. In more detail the classification would be as follows:

I. ANATOMY:

Histology;
Embryology;
Biology;
Zoölogy;
Statics and mechanics.

2. PHYSIOLOGY:

Chemistry;
Principles of nutrition;
Physiological action of drugs;
Materia medica;
Medical botany;
Pharmacy.

3. PATHOLOGY:

General pathology;
Special pathology;
Morbid anatomy;
Pathological histology;
Postmortem examinations.

4. HYGIENE:

General hygiene;
Special hygiene, including immunity;
Bacteriology;
Meat inspection;
Milk inspection;
Dairy farm inspection;
Epizoötiology.

5. SURGERY:

Surgical anatomy;
Surgical diagnosis;
Surgical pathology;
Operative surgery;
Horse-shoeing;
Obstetrics;
Clinics.

6. MEDICINE:

Physical diagnosis;
Laboratory diagnosis;
Principles and practice;
Special therapeutics;
Clinics.

7. ANIMAL ENGINEERING:

Animal production;
Breeds of animals;
Breeding animals;
Judging animals;
Stock farm management;
Hippology;
Meat packing and manufacturing;
Dairying, etc.

For their full development, a large number of men could profitably be employed in each of the above departments. It is not proposed to outline a classification to provide for research, but

only for the practical work of veterinary teaching. With this in view, it appears that each of these departments should be taken care of by one professor and two assistants. This calls for a teaching force of 21 men. Undoubtedly, all of these teachers should devote their best energies to the work of the school. If they were permitted to accept outside employment, it should be only in the line of the subjects taught and should be limited in amount. The professor at the head of each of these departments should receive a salary of not less than \$3000 (\$3000 to \$5000); the first assistant should receive a salary of not less than \$1800 (\$1800 to \$2500), and the second assistant should receive a salary of not less than \$1200 (\$1200 to \$1800). Therefore, the minimum charge for the salaries of the teachers in each of the seven departments amounts to \$6000 a year. It is manifest that adequate work cannot be done for less, because it is impossible to conceive of the branches enumerated being properly taught by a smaller staff, no branch enumerated is superfluous and the salaries which form the basis of this estimate are minimum salaries, as measured by salaries now ruling for teachers engaged in more or less similar work in universities and agricultural colleges.

II. Material Equipment.—An adequate veterinary college must have a school equipment and a hospital, or clinical, equipment. The school equipment must comprise facilities for teaching all of the subjects excepting clinics under the seven headings. This calls for classrooms, laboratories and illustrative material. In order that the work may be conducted without interruption and delay, it is necessary that separate facilities shall be provided for teaching the different groups of subjects. For example, in the department of anatomy there must be a dissecting room and one or more laboratories in which histology, embryology and biology may be taught. In the department of physiology, there must be one or more laboratories for practical physiology, chemistry, toxicology and pharmacy. In the department of pathology, there must be facilities for making post-mortem examinations and there must be a well equipped laboratory for giving instruction in pathological histology. In the department of hygiene, there must be a laboratory for bacteriology and for teaching certain parts of meat and milk inspection. In the department of surgery, there must be ample facilities for clinical and for practical instruction. In the department of medicine, there must be oppor-

tunity for clinical instruction and for laboratory instruction as well, in relation to clinical examination and the newer and more scientific methods of diagnosis. In the department of animal engineering, there must be a laboratory and work room where students may be drilled in the examination and classification of foodstuffs, and of the various animal products, and in the study and tabulation of pedigrees. In connection with hippology, a collection of the various kinds of harness, bits, saddles, etc., together with facilities for adjusting and for illustrating the usefulness of the various constructions. In teaching the breeds of animals, the principle of breeding, judging animals, stock farm management, etc., it is difficult to see how the work can be done properly without the use of a well equipped stock and dairy farm.

There must also be a well equipped library, and each of the departments will need to have its own museum collection.

Without going into the details of the physical arrangement and the cost of such an equipment, which would depend largely upon local conditions, it may be said that the total cost would scarcely fall below \$350,000. The cost of maintaining such an equipment and of supplying the various material needed for class instruction would amount, upon a minimum basis, to \$33,000 a year. This amount added to the teachers' salaries makes a total of \$75,000 a year as the least cost of maintaining an adequate veterinary school.

III. The Student Body.—In order that the teaching that is here outlined may be taken advantage of, it is necessary that the students shall come to the school as well prepared educationally as are the students entering upon other lines of scientific work of college or university grade. The general standard for students entering upon work in medicine, law, engineering, agriculture, etc., throughout the United States, is the equivalent of a high school course covering four years. It would appear that such a standard might properly be accepted in this connection. If the standard of admission were lower, the grade of the work of the school would be cast upon too low a plane. If the standard were higher, it would be too far in advance of the generally accepted standard for technical colleges in this country.

The duration of the course of instruction should be four years of nine months each.

It appears, then, that a veterinary school must have an equipment that cannot be provided for less than \$350,000 and that it

must have a budget of at least \$75,000 a year if it is to be prepared to teach the veterinary sciences as thoroughly as is required by the needs of the public and the student. Such a school could teach 200 to 300 students.

At first sight, these estimates may seem to be large because, in this country, veterinary education has never been organized on anything like an adequate basis, and we have naturally fallen in the way of judging the subject by what we have, rather than by what is needed. If it is agreed that all of the subjects enumerated are necessary in the equipment of a modern veterinarian—a man prepared to meet satisfactorily the technical demands that properly fall upon the veterinarian of the present day—and if it is admitted that teachers cannot be compensated for the services required of them at salaries less than those stated, and that the material equipment described cannot be restricted excepting at the cost of efficiency, then it must be admitted that the total estimate is a minimum estimate of the cost of equipping and maintaining an adequate veterinary school.

By using this outline as a standard, one can determine to what extent the best of the American veterinary schools falls short of what is actually needed. In making such a comparison, however, it should not be based alone upon the budget of the school it is desired to measure, but rather upon the facilities for instruction and upon the actual grade of the work done, as compared with the work one could fairly expect from an institution organized in accord with the above outline. The reason for this is that some of our American veterinary schools are blessed by having among their teachers men who receive small salaries, or no salaries, but who work as faithfully and as diligently and as effectively as though they were receiving adequate compensation for their services. A man who does this, contributes, to the school, in effect, the amount equivalent to the difference between what he receives for his services and what they are worth. There are veterinarians, with the zeal of missionaries, who, in this way, contribute annually from \$500 to \$2,500 worth of services to the institution with which they are connected. If institutions are compared by their budgets, the value of contributions in service must not be omitted from the total of the income and disbursements of the institutions.

The standard for a veterinary school as outlined is similar to the standard in most of the countries of continental Europe.

Many of the European schools, however, have equipments far larger than the equipment here outlined, and their incomes are also much greater than here proposed. The equipment of the schools at Berlin, Hanover, Munich, Dresden, Buda Pest, Vienna and Alfort could not be duplicated in this country at an expense of less than \$1,000,000 to \$1,500,000. If European countries have found, after a century of experience, that these expenditures are justified, and they must have found that they are justified, because they are continually being increased, there can remain no doubt that similar expenditures in this country would be completely justified by the results they would render possible.

An argument of this sort is frequently met by the statement that one must not expect too much for "the veterinary sciences are young in this country" and that we cannot be expected to have as complete institutions for promoting these sciences as exist where they are older. Such a statement is based upon a misconception of the facts. Science is international, it knows no political boundaries. The discovery of the tubercle bacillus is as old in the United States as in Germany, where the discovery was made. The facts of anatomy, of physiology and pathology are as old here as in their original homes, and so with all of the elements that enter into the complex group known as the veterinary sciences. And since this is true of the parts, it is true of the whole. The veterinary sciences are of the same age in this country as everywhere else upon the earth. It is only the public recognition of the value of the veterinary sciences that is young and immature. Closer attention, in the light of the above statement, will show that while the veterinary sciences in this country have the appearance of having the immature stature of a boy, in reality they are comparable to an illy-nourished, dwarfed old man. The veterinary sciences do not lack age—they lack development.

THE RELATION OF THE QUALITY OF THE FACILITIES FOR VETERINARY EDUCATION TO THE STATUS OF THE VETERINARY PROFESSION.

In the long run, veterinarians will find themselves occupying the fields that they are better fitted to occupy than are men trained in other lines and in other schools. The future of the veterinary profession in the United States, as elsewhere, depends

upon the ability of veterinarians to render useful and needed service. If veterinarians aspire to any given field of work, it is necessary that they shall be the best equipped to occupy that field.

It is illuminating but, at the same time, depressing, to run over the list of the seven departments of veterinary sciences, as given above, and inquire, as we proceed, how many American veterinarians are entitled to high rank in these various departments, or their subdivisions. For example, in pathology, a subject that underlies medicine, as anatomy underlies surgery, how many veterinarians in the United States are entitled to high rank? This field is the most important within the whole domain of the veterinary sciences, it is the one upon which the most typical and most important of our veterinary work pivots. The post-mortem work of the meat inspector is applied pathology, the diagnosis and treatment of diseases depend upon knowledge of pathology, the knowledge necessary for the recognition and control of animal plagues depends principally upon a solid foundation of pathology.

If we search for the leading men in the bacteriology of the diseases of animals, how many do we find in the ranks of the veterinary profession?

Where do we find the most complete, the most reliable and the most practical knowledge of the principles and practice of animal nutrition, a department of comparative or veterinary physiology?

Where do we find expert knowledge and professional skill upon subjects pertaining to animal husbandry and who are the recognized authorities in this field?

If a national meeting is called for a scientific discussion of milk and dairy inspection, what percentage of the authorities on these subjects rank as veterinarians? If one searches the literature for the solid facts upon the bacteriological, microscopic and chemical investigations of the milk supply, how many veterinarians does he find among the authorities of the first rank? If one wishes the best instruction in this field, would he go to a veterinary college—if so, to what one?—or would he go to a school in dairying in connection with an agricultural college?

In meat inspection, the veterinary profession is confronted by one of the most important crises in its history. The Federal government has increased its system of meat inspection until it now costs about \$3,000,000 a year. The Federal meat inspection service covers less than one-half of the meat supply of the United States. The larger part of the meat supply is under very little

inspection. A few states and municipalities have organized, somewhat tentatively, small meat inspection services. In many places, the authority of the veterinarian in this work is not recognized, and men of little or no training are appointed to occupy positions as meat inspectors. This means that the local meat inspection work will give unsatisfactory results and that it will not develop as it should. The failure of local meat inspection services "to make good," and to develop, will, inevitably, have an effect that is not commonly appreciated upon the Federal meat inspection service.

The cost of the Federal meat inspection service is paid by the individual citizens of the United States; the cost of the state and municipal meat inspection service is paid by the same individual citizens of the United States. To say that one is paid by the National government and the other by the State and municipal governments is to establish a distinction that is not real for, in the end, all taxes, whether general or local, are paid by the people of the country.

Pennsylvania has about one-twelfth of the population of the United States; therefore one-twelfth of the cost of the Federal meat inspection service, \$250,000 a year, is paid by the people of Pennsylvania. The people residing in other states pay their share of the cost of the Federal meat inspection service in similar proportion.

How can a given community, or a given individual, be expected to continue indefinitely to pay for the inspection of a part of the meat supply and to ignore the inspection of the remaining part? The individual, the community and the groups of individuals and communities that make up the nation must ultimately depart from such an illogical position and come to the conclusion that meat inspection *is worth having or that it is not worth having*. If it is worth having, then all of the meat must be inspected. If it is not worth having, there is no reason why that part of the supply that is prepared in one State for sale in another shall be inspected and the inspection of the remaining part ignored. This means that local meat inspection services must be developed to take care of the inspection of that part of the supply that is not inspected by the agents of the Federal government or, if this is not worth while, then it is not worth while to continue to spend large sums for the maintenance of the Federal meat inspection service. In other words, municipal, State and Federal meat in-

spection services must prove their worth and be developed together, or they must fall together. To those of us who believe that meat inspection is of large sanitary importance, there can be no more important task than to assist in the development, along proper lines, of local meat inspection services. If such local meat inspection services are placed in incompetent hands and are developed along improper lines, or are not developed at all, then the end of the Federal meat inspection service is ordained.

The Federal government has placed all positions of independent responsibility in the meat inspection service in the hands of veterinarians, but it has engaged for duty in certain parts of the service a large number of men who are not veterinarians, but who are taken from the rank of practical butchers. To these men it has given the title of MEAT INSPECTOR, in contradistinction to their superiors in office who are known as VETERINARY INSPECTORS. This new classification and nomenclature has led to much confusion on the part of the public. There is in some places a common and natural impression to the effect that the meat inspection work of the government is no longer conducted by veterinarians—for are not the “meat inspectors” laymen? It is not recognized that the officials termed “meat inspectors” are really meat inspectors only in the most limited sense, and that the important technical work of meat inspection is not done by the so-called meat inspectors, but by the veterinary inspectors. In order that the confusion on this point, which is widespread, and which threatens to lead to serious consequences, may be removed, it is important that the official termed “meat inspector” shall be given some other and less confusing title; “assistant to the veterinary inspector,” “meat classifier” or “grader of meats.”

Localities organizing meat-inspection services cannot be expected to recognize the fine distinction under the present Federal nomenclature, between the office of veterinary inspector and meat inspector and thus the organization of local services on proper lines is hampered.

On the other hand, the veterinary schools must prepare men not only for the important part of the work of meat inspection—that based on a knowledge of pathology—but for every possible subdivision of the whole meat inspection field.

The subject of dairy inspection is coming rapidly to the fore. There is likely to be in the near future as much (and very likely, more) development in the line of dairy inspection as in meat

inspection. Among veterinarians it is commonly accepted that the sanitary supervision of dairy farms and herds is naturally veterinary work. There is much to be said in favor of this view. Wholesome milk depends, in the first instance, upon the health of the cows that produce it, and upon the sanitation of their surroundings. So far as the health of cattle is concerned, veterinarians are, of course, the natural experts, but in relation to the sanitation of dairy premises there is much difference in opinion and veterinarians are commonly accepted as the authorities in this field. The training that veterinarians receive in hygiene, their knowledge of the bacteriology of milk and of the sanitary sciences, ought to make them as conclusively authorities in dairy farm sanitation as they are with regard to the health of dairy cattle. But that this is not recognized is shown by the fact that under the recently developed plan for the sanitary inspection of the farms and herds producing milk for New York City (this inspection is to cost \$160,000 a year), there is no special provision for the employment of veterinarians and, unless the plan has recently been materially revised, very few veterinarians will be employed in this work. These inspectors are to be practical dairymen and men trained in dairy schools.

This important and rapidly developing field can be occupied by veterinarians only when it can be shown that men are thoroughly trained in veterinary schools in work of this character, and when it can be shown that the training in this line that is given in veterinary schools is more complete and furnishes a technical equipment of higher quality than may be elsewhere obtained. In other words, if the veterinary profession is to be given this work to do, the schools must greatly strengthen their courses in dairy farm sanitation and in milk hygiene.

Much might be said as to the outlook for veterinary work in many lines related to "animal husbandry." There is much to be done in the development of the animal husbandry of the United States that involves veterinary knowledge but, in order that men trained as veterinarians may be given an opportunity to exercise their veterinary knowledge in this field, it is a prerequisite that they shall have as complete training along animal husbandry lines as is furnished in the best agricultural colleges.

It is a trite saying that "a stream can rise no higher than its source," and unquestionably this is true in relation to the professions. No profession can rise higher than the schools in which

its members are trained, as these are the sources of the special knowledge, the grasp and the ideals of the profession.

So long as men must go to institutions other than veterinary colleges to obtain the best attainable training in many of the fundamental subjects that enter into the veterinary sciences, the veterinary profession cannot be said to have a very secure hold on its field, and it cannot advance as it should. Moreover, it is in constant danger of losing part of the ground that it has already occupied. If the veterinary profession is to rank with other learned professions, the average of intelligence and of professional knowledge must be as high as the average intelligence and professional knowledge in the other professions. This means that the schools must be as good as the schools of medicine, law, engineering and agriculture.

We must have good facilities for teaching men, unless we are to be satisfied with a lower standard for our profession than the standard that prevails in other professions. Such facilities cannot be provided without means. The amount of money that is required to equip and maintain a veterinary school on a basis equivalent to that of other professional and technical schools has already been indicated. The next question is how may this money be obtained? It is manifest that it cannot be obtained from tuition fees. A veterinary college maintained wholly by the fees of its students may do excellent work so far as it goes, but its field will ultimately be limited by what the students can afford to pay for. It has been found by experience that schools of medicine, law, engineering and agriculture, etc., and the general scientific and classical courses of the colleges and the universities of the country cannot be sustained by tuition fees alone. Higher education cannot be self-supporting. The college of medicine, for example, that is subsisted entirely by students' fees cannot do its duty to its students. It cannot adequately train men for the responsibilities of the present-day physician.

I have in mind a medical college that is carefully and economically administered, that has 500 students, each paying an annual tuition fee of \$200. This college receives the services of a large number of capable men at a minimum salary, in addition to specialists who devote all of their time to the college, and who are well paid. But the tuition fees fail to equal the current expenses of the college by from \$25,000 to \$35,000 a year.

Colleges of agriculture in the various States receive public funds for current expenses amounting to from \$40,000 to \$200,000 a year.

In the past, and to some extent now, unendowed veterinary colleges have given to their students much more than the students have paid for, through the public-spirited, generous contributions of time and effort by the teachers; but this sort of self-sacrifice cannot be expected to continue indefinitely. In the long run the efficiency of a school will be in more or less direct proportion to the income of the school.

Institutions of higher education in the United States derive their income, in excess of tuition fees, from three sources: from gifts from individuals, from the public funds of the States in which they are located, and from the Federal treasury. Thus far, veterinary schools have not appealed very successfully to benevolent individuals. One veterinary college in an eastern state has received contributions from individuals amounting to about \$250,000. A newly-planned veterinary college in a central state is said to have received a donation of from \$200,000 to \$300,000 from a group of individuals interested in the live-stock and packing industries. Not much more than one-half million dollars in all has, thus far, been received, or promised, to veterinary colleges from private sources.

A number of States have taken some part in the development and promotion of veterinary knowledge by making appropriations for the equipment and maintenance of veterinary schools. The state of Pennsylvania, during the past two years, has appropriated \$200,000 for the construction of a building for a veterinary school. The state of New York has appropriated \$150,000 for the construction of a building for a veterinary school. The state of Ohio has appropriated \$60,000 for a similar purpose, and a few other states have appropriated smaller amounts. The state of New York appropriates \$30,000 annually for the support of the State Veterinary College. The state of Illinois has made a similar appropriation for this purpose. In addition to these, the states of Iowa, Washington and Colorado make small annual appropriations for the support of veterinary education. Some other States support a certain amount of veterinary work in their land-grant colleges, the funds for which come in part from the States themselves and in part from the Federal government.

The Federal government has done nothing directly for veterin-

ary education. As has been stated, small appropriations of the Federal funds donated to land-grant colleges have in some instances been used to support a limited amount of veterinary work. Such veterinary work, however, has, in most cases, been carried on in connection with agricultural experiment stations, or in courses arranged for agricultural students and cannot, therefore, be regarded as of moment in relation to the education of veterinarians.

It is now seriously proposed to appropriate Federal public funds for the support of branch agricultural colleges and agricultural and industrial academies or high schools in the various States of the Union. This project, while it is young, has acquired considerable headway and is being strongly supported.

The development of veterinary knowledge is of such immense importance to the United States that the veterinary profession is fully justified in asking Congress to include it in this scheme and to appropriate money for the support of veterinary schools. The losses from the disease of animals that ought to be prevented, and that we may reasonably expect to prevent in the future, amount to from \$150,000,000 to \$200,000,000 a year. Less than one percentum of this animal loss would be ample to support all the veterinary schools needed in the United States.

Appropriations by Congress for this purpose should be so bestowed as to render the largest possible service to the country. To make an appropriation of \$10,000 or \$20,000 to each State would be equivalent to fostering the establishment of a large number of inadequately equipped, insufficiently maintained veterinary schools, which would cheapen and injure the profession and retard proper development.

What we need in the United States is a sufficient number of schools of high class and not an excessive number of schools of low class.

In order that there may be some assurance that Federal funds appropriated for this purpose would do the most good, it should be stipulated that anything given by the Federal government for this purpose shall be matched by an equal sum from other sources, that is, from the State in which the school is located, or from benevolent individuals. If, therefore, a school were able to raise \$30,000 or \$40,000 a year from local sources, and if it should receive a similar amount from the Federal government, it would

then be in position to do the kind of work that the veterinary profession so urgently needs.

In view of the needs of the country and of the tremendous value of veterinary education to all of the people, in view of the precedent that has been established for the use of Federal funds for purposes similar to this (agriculture) and of the overflowing wealth of the National Treasury, it ought to be possible, by concerted effort, to obtain help from that source.

Excepting in the case of a few institutions that are dishonest and that flagrantly violate the code of ethics, and that will be dealt with by the Association of Faculties, it is idle to talk of the inefficiency of the veterinary schools as they exist to-day. Most of them are as efficient as it is possible for them to be under existing circumstances.

The veterinary profession cannot reach the position of usefulness, importance and dignity that it should occupy until largely increased funds for educational purposes are supplied from some sources outside of the profession, and the most likely source is all of the people of the United States as represented by the
FEDERAL GOVERNMENT.



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